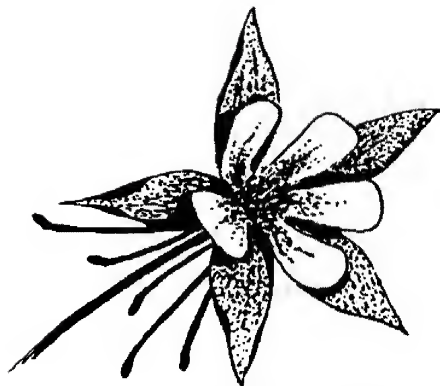


Aquilegia

Newsletter of the Colorado Native Plant Society



"... dedicated to the appreciation and conservation of the Colorado native flora"

Volume 13, Number 3

May/June 1989

WANTED: Sandberg Bluegrass

Jim Borland

The Soil Conservation Service (SCS) is requesting the assistance of our society in collecting seed samples of native populations of Sandberg Bluegrass (*Poa secunda*). From these collections throughout the Intermountain and Northwest regions the SCS intends to select and develop an improved cultivar for purposes of range seeding, revegetation, firebreaks, weed suppression, land retirement and erosion control.

The SCS is asking our assistance in making as many ecotypic collections of seed as possible. *Poa canbyi* (Canby Bluegrass), *Poa nevadensis* (Nevada Bluegrass), and *Poa ampla* (Big Bluegrass) are also being considered for development, and seed collections of these species are sought.

Those considering the collection of seed of these grasses are asked to provide the following collection information if possible: date collected, state, county, collector's name and address, township, range, section, soil type, elevation, slope, exposure, precipitation, plant association and a small sketch map of the exact location. This information is vital because your collection may be the final one selected for improvement and additional collections from your site may be required.

Seeds collected should be sent to:

Aberdeen Plant Materials Center
Experiment Station
P.O. Box AA
Aberdeen, Idaho 83210

Should additional information be needed on species description, collection forms, etc., please contact Jim Borland and (303)329-9198. ✱

Calendar Overview

Additional information about calendar items will be found throughout this issue.

Workshops and Meetings

October 7 **CONPS Annual Meeting**
at Colorado School of Mines

Field Trips

May 20 – 21 **Southeast Grasslands**
Leader: Rick Brune

May 27 – 29 **West Central Colorado**
Leaders: Joanne Young and Jeff Dawson

June 10 **Phantom Canyon**
Leader: Alan Carpenter

June 18 **Middle Park Endemics**
John Anderson

June 20 – 23 **Yampa River Trip**
Leader: Tamara Naumann

July 8 **Pueblo West/Arkansas Valley**
Leader: Jim Borland

July 22-23 **Yankee Boy Basin**
Leader: Peggy Lyon

ANNOUNCEMENTS

Castlewood Canyon Plant Inventory

The Denver Chapter of CONPS is continuing its native plant inventory of Castlewood Canyon State Park. This is the third year of a program sponsored by the Colorado Division of Parks and Outdoor Recreation and the Society to increase the knowledge of native plants in this park. Those who would like to participate in collecting and cataloging plants, or just exploring Castlewood Canyon, contact Jeff Uhlich at (303)694-1446 for more information.

A Message from the Field Trip Chairman

This edition of *Aquilegia* reprints descriptions for field trips announced in the last issue beginning on page 6. The West Central Colorado trip description, which was inadvertently truncated last issue, is reprinted in full. An additional trip in July has been scheduled to Yankee Boy Basin, page 8.

Some new procedures will be used on field trips this year. First, all participants will be required to sign a waiver to protect the society from liability. The trip leader will have the forms and signing will occur when the group gathers to begin the trip. Second, we want to standardize the method of recording species lists from field trips. A new form has been prepared and will be available from the trip leader. As before, a volunteer on each trip will be asked to record a list of all species observed in flower for Society records. Other participants are encouraged to help with this. Third, to ensure a better record of field trip reports, the field trip chairman will do more follow-up this year. As before, the trip leader will ask for a volunteer to write an article describing the trip and its highlights for the newsletter. Please be willing to share your experience with those who were not able to be there. Reports should be thorough enough to convey the experience, but stop short of providing a complete substitute for the trip. Other procedures and policies will remain the same. Please be sure to re-read the field trip policies printed last issue. If you need a copy of the policies or waiver, please contact Jeff Dawson.

We are trying a new type of trip this year, a raft trip down the Yampa River. Although this trip is full, if people are interested, we can have other trips of this sort in subsequent years. Suggestions for different types of trips, such as backpacking trips to more remote areas, have been made recently. If you have ideas for future trips, or comments on the selection for this year, call Jeff Dawson, the field trip chairman, at 722-6758.

Jeff Dawson

Denver Chapter Activities

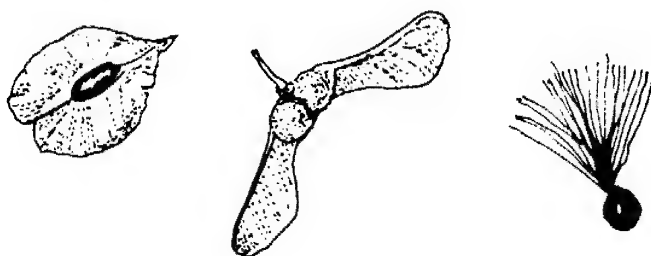
May 24: Final chapter meeting of the year and potluck dinner at Jim and Dorothy Borland's house, 320 Adams, Denver; phone 329-9198. Plan to arrive early (around 6 PM) for a tour of Jim's garden, followed by a potluck dinner.

June 3: Mt. Falcon hike and potluck lunch. We'll meet at 8:00 AM at the east parking lot (south of Morrison on Colo. 8, follow brown and white park signs) and carpool to the top. After hiking down, we'll regroup at the Morrison Cabin for a tour and potluck lunch. More information will be provided at the May meeting.

The Denver Chapter usually meets on the fourth Wednesday of each month (except summer). Contact Carol Dawson (722-6758) for information on chapter activities.

Boulder Chapter Activities

Plans are being made for two field trips this summer. In conjunction with the Colorado Mycological Society, a mushroom foray is planned for sometime in July. A hike to the Diamond Lake area will be scheduled for early August to look at *Gaultheria humifusa*, *Athyrium distentifolium*, *Lycopodium annotinum* and *Huperzia selago*, among others. Dates, times, and meeting locations will be announced in a separate mailing to Boulder Chapter members.



Editorial Gratitude

to our regular contributor, Ann Cooper, not only for her informative articles, but especially for **providing a collection of illustrations!** that can be used to embellish many future issues. Obtaining and maintaining a broad collection of plant illustrations will help us avoid over-repetition of familiar drawings. Thanks, Ann.

Now, do any of the rest of you have useful illustrations or other material you'd like to see published in future issues? It would be nice to have a matching illustration for various species discussed each issue. Any more hidden talents?

Parthenium alpinum and its relatives in Colorado

Jim Locklear

"Amazing", "peculiar", "curious" — these are all terms that have been used by normally understated botanists to describe three closely-related plants in the genus *Parthenium*. *Parthenium alpinum*, *ligulatum* and *tetaneuria* are among the most interesting plants of the western U.S., and they all occur in Colorado.

The story of this group begins with the discovery of *P. alpinum* by Thomas Nuttall in 1834. He collected the plant as he crossed Wyoming bound for Oregon with the Wyeth Expedition. Nuttall's new species was a composite (Asteraceae), but it appeared too unusual to him to place in any recognized genus within that family. Accordingly, he created a new genus for the plant and named his discovery *Bolophyta alpina*. Nuttall's plant was later placed in *Parthenium* by Torrey and Gray in their 1842 publication, *A Flora of North America*, and renamed *Parthenium alpinum*.

Interestingly, *P. alpinum* was not seen again in the wild for over 100 years, when it was re-discovered in 1947. Prior to this there had been much speculation as to the location of Nuttall's collection, particularly following the discovery of plants very similar to *P. alpinum* outside of Wyoming.

In 1910, Marcus E. Jones reported his collection of an entity resembling *P. alpinum* from the Uinta Basin of north-eastern Utah. Because of some minor differences in the structure of the flower head, he named his new species *P.*

alpinum var. *ligulatum*. The plant was later found by H. Dwight Ripley and Rupert C. Barneby in Rio Blanco County, Colorado. Ripley subsequently renamed it *P. ligulatum*.

The story of *P. alpinum* grew even more interesting when, in 1946, Ripley and Barneby found another very similar plant in Fremont and Pueblo counties in Colorado — on the other side of the Rocky Mountains from *P. ligulatum*! Again, this entity differed only slightly from Nuttall's original *P. alpinum*. This plant Barneby named *P. tetaneuris*.

In 1943, prior to the discovery of *P. tetaneuris*, an article entitled "The Story of *Parthenium alpinum*" appeared in the botanical journal *Madroño*. The author, George J. Goodman, drew attention to the fact that, although over one hundred years had passed since Nuttall discovered *P. alpinum*, no one had succeeded in relocating it in the wild. He cited Nuttall's vague description of the collection locality as the major obstacle in relocating this species. Yet, in comparing Nuttall's information with the journal kept by John K. Townsend, another naturalist on the Wyeth Expedition, Goodman predicted that Nuttall probably collected *P. alpinum* 50 to 100 miles up or down the North Platte River from Casper, Wyoming.

— continued on page 10

Cerastium arvense



Nothocalais cuspidata



Board Notes

Peter Root

The CONPS Board of Directors met on 11 March 1989 at the home of Carol and Jeff Dawson in Denver. Dorothy Udall reported that discussions will continue with the National Park Service on volunteer participation in research activities in Rocky Mountain National Park. Publication of the rare plant monograph is expected in June. The Rocky Mountain Nature Association is providing funds needed for final publication expenses.

It was announced that the annual meeting of the Society will be on October 7th at the School of Mines in Golden. The topic will be **Native Plants on Public Lands**. There was a discussion of the destruction of rare plants during highway construction. Jim Borland will coordinate with the Highway Department in a possible role for CONPS in reviewing future highway construction sites for threats to rare plants.

Rhus Revealed: Sleuth finds Ruse

Jim Borland

Recently a friend asked my thoughts regarding the status of an item often encountered in local nursery catalogs and usually labeled "*Rhus glabra cismontana*". Because most current floras of the western United States do not treat this as either a valid variety or subspecies of our smooth sumac, *Rhus glabra*, I decided to do a little "sleuthing". Without boring everybody with the details revealed in a search through 80 or more texts, suffice it to say that at one time many botanists recognized the existence of at least two species: *Rhus glabra* and *Rhus cismontana*.

Basically, *Rhus cismontana* was a name assigned to what most of us know as simply *R. glabra* but which occupied the then western part of its known range, specifically 'this side of the mountain', as the epithet 'cismontana' implies. Among other attributes, its height is noted as ranging from three to 18 feet. According to a 1940 article in the Journal of the Arnold Arboretum, it differed from *R. glabra* "chiefly in the smaller and narrower, less numerous leaflets, lighter green above and only glaucous beneath, and in the smaller pyramidal inflorescence."

With time, over 47 synonyms and combinations of the current *Rhus glabra* have been named, presumably by the 'splitters'. The 'lumpers' consider the species a polymorphic one with much variation in leaf color, leaf glaucousness, leaf edge revolutum and serration and leaflet number. Fred A. Barkely in his 1937 monographic study of *Rhus* (Annals of the Missouri Botanic Garden, Vol. 24) notes that the leaflet number of leaves from a single plant may vary by as much as 14 leaflets. This sort of observation, similar to that which occurred with the now recognized polymorphic nature of *Quercus gambelii*, is usually the death knell for the continued existence of far too many names for the same thing.

One of the curious aspects of all this is the continued use by nurseries of the name '*Rhus glabra cismontana*' which is used to denote a dwarf form of *Rhus glabra*. The first literary combination of these two specific epithets was by F.P. Daniels, in his 1911 *Flora of Boulder, Colorado, and Vicinity*. In this flora, Mr. Daniels assigned all the *Rhus glabra* in the county to this new combination form without noting if *cismontana* was a subspecies, variety or form of the species. Further confusing the matter is that no author, including Mr. Daniels, ever considered the height of this thing variously attached to *cismontana* as a definitive character. Yet the consensus of nursery people who associate the name *cismontana* with a particular plant do so only because of the overall dwarf nature of the plant.

The confusion is clarified, perhaps permanently, with a review of the early nursery catalogs of D.M. Andrews' Rockmont Nursery which operated at the corner of 23rd and Bluebell in Boulder. As far back as 1916, he listed *Rhus glabra cismontana* as a shrub attaining a height of 4 to 6 feet, not necessarily small even by today's standards. Sometime between 1916 and 1930 the name *glabra* was dropped and replaced with *Rhus cismontana*, a special selection of which was named 'Rockmont Sumac.' This was "a selected type which differs in its dwarfer habit", attaining only 4 feet in height. This selection continued its place in Mr. Andrews' catalogs until at least 1941.

The bottom line, then, is that most current botanists do not recognize *Rhus glabra cismontana* as a valid combination, and that those in the nursery trade who believe that the name *cismontana* indicates a dwarf plant are mistaken. The nursery trade should continue developing the vast diversity to be found in nearly every species, but nurserymen should find another way to indicate their line of smooth sumacs that exhibit a shorter stature.

-- continued next page

Volunteers Needed

The Denver Museum of Natural History's Zoology Dept. needs assistance in developing their herbarium. Volunteers would be involved in the following possibilities: collecting and mounting Colorado plants, labeling plant folders and herbarium sheets, typing collector's data into a computer, and various other herbarium jobs. If interested call Tina Jones (759-9701) or Elaine Smith (447-9641). Inquiries may be addressed to: Attention Herbarium, Denver Museum of Natural History, Zoology Dept., 2001 Colorado Blvd., Denver, CO 80205.



Rhus trilobata

Rhus Ruse, continued from previous page

Wait! There is another bottom line.

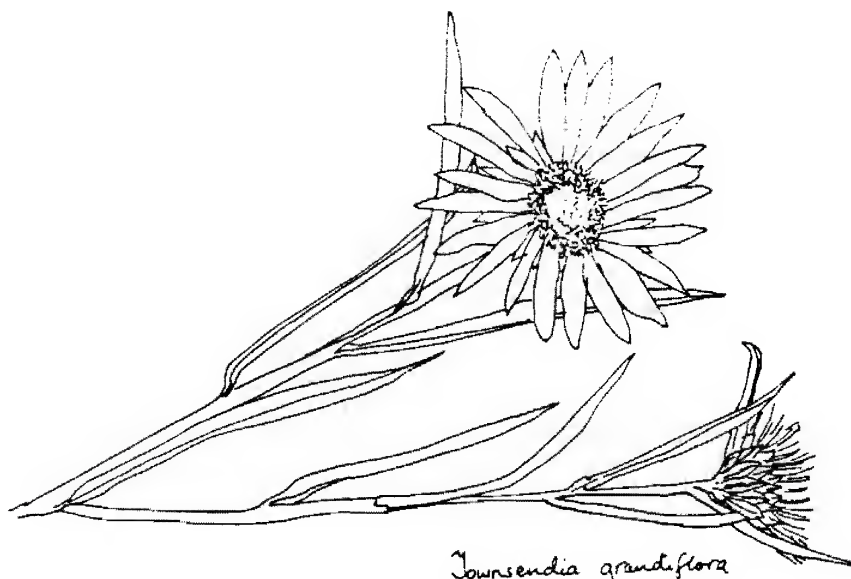
Those who are familiar with the habitat of *Rhus glabra* in Colorado will have observed that in any one colony of this root-spreading shrub only one height prevails, and that within the species as a whole, heights vary from one to more than 10 feet. Much to the advantage of nurserymen is the fact that seed taken from any one colony usually begets plants of similar size. This is somewhat unusual among woody plants where many species are not self-fertile, thereby ensuring a mixing of the general population gene pool in their seeds.

Wait, there's more: Sometime before 1922, D.M. Andrews found in Boulder County a form of smooth sumac whose leaves turned yellow in the fall instead of the usual reddish colors and whose berries too were yellow instead of red. This "albino" form, as he called it, was transplanted into his garden and in 1922 found its way into his catalog. In 1925 he sent a plant to the Arnold Arboretum where it is noted that it flourished. The Rockmont Nursery catalog continued to carry this item into the 1940s. This form Mr. Andrews called *Rhus cismontana flavescens* but it was later changed to *Rhus glabra* var. *cismontana* forma *flavescens* by A. Rehder.

One more. In addition to this form there is at least one other that merits horticultural attention. Whether one uses "sub-species", "variety", "forma" or "cultivar" between *Rhus glabra* and *laciniata*, local horticulturists should welcome the bipinnately compound leaves that this form offers. Because its only known native site is in the southeast corner of Pennsylvania, however, it may not prove to be as drought-worthy as our own local *Rhus glabra*.

PS. A natural hybrid between *Rhus glabra* and *Rhus typhina* is also known.

During this search of the nomenclature for smooth sumac, a parallel search was also conducted for the three-leaf sumac which seems to be making a move in the literature from *Rhus trilobata* to *Rhus aromatica*. [Ed. Note: Does this mean we can expect a shift back to 'skunkbush sumac' as the common name?] Due probably to its even greater polymorphic plasticity, the history and nomenclature of these two taxa is even more complicated and confusing. Will the Rhus sleuth tackle another ruse? Stay tuned. 🌿



CONPS Field Trips for 1989

West Central Colorado

May 27-29

Leaders: Joanne Young and Jeff Dawson

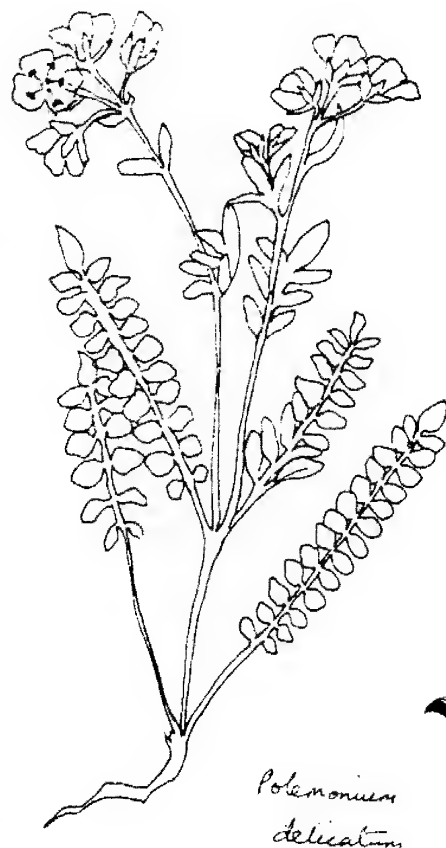
This three-day trip will explore several areas in the Grand Junction region, including Grand Valley, Unaweep Canyon, Gateway, Naturita and Douglas Pass, with each day having a different focus. We will travel primarily by car, with frequent stops along the way.

On Saturday, May 27th, a field trip will go to Black Ridge and the edge of Rattlesnake Canyon, west of Colorado National Monument. This area has been proposed as an addition to the existing monument. A 2- or 4-wheel drive vehicle with good clearance will be necessary. Meet at 10 AM at the Colorado National Monument Visitors Center; bring lunch. We will return by 4 PM or 5 PM.

On Sunday, May 28th, we will drive through Unaweep Canyon to Gateway, and then explore along the Dolores and San Miguel River Valleys as far as Naturita. We will see species such as *Penstemon utahensis*, *Gilia subnuda* and the local endemic *Lygodesmia dolorensis*, as well as spectacular scenery and interesting geology.

On Monday, May 29th, meet at 9 AM at City Market parking lot in Fruita. We will drive over Loma Hills desert floor flora and if time permits into the Book Cliffs to the top of Douglas Pass.

A light raincoat may be necessary, as well as bug spray. Camping is available at Colorado National Monument and south of Fruita. Grand Junction and Fruita have many motels, some quite inexpensive. Trip reservations are required — call Jeff Dawson at (303)722-6758.



Phantom Canyon Preserve

Saturday, June 10

Leader: Alan Carpenter

The Nature Conservancy's Phantom Canyon Preserve is located northwest of Fort Collins at an elevation of 6000 to 6800 feet. It consists of a striking canyon system formed by the North Fork of the Cache la Poudre River. A variety of plant associations occurs in upland parklands, rocky canyon rims, cliffs, riparian bottoms, side canyons, and moderate to steep side slopes. The Nature Conservancy acquired the Phantom Canyon Preserve in December, 1987. Since that time, staff members in TNC's Colorado Field Office have been developing a management plan to guide visitor use and biological studies. An important part of the biological inventory is a complete checklist of plants at the preserve. We have made a start, but more inventory work needs to be done. The purpose of this field trip is to explore portions of the preserve and add new species to the checklist. This trip is scheduled to coincide with peak flowering. One rare species, the Larimer aletes, occurs in the preserve and will be in fruit at this time.

The meeting time and place will be 10:00 AM sharp at a locked silver-colored gate on the west side of US Highway 287, 4.7 miles north of the intersection of US 287 and the Cherokee Park Rd.; the locked gate is about 35 miles north of Fort Collins and about 8 miles north of Livermore. We will car-pool in a van from here to the preserve, will head for home about 5:00 PM. Please bring the usual botanizing tools (hand lens, flora, etc.), a lunch, water and rain gear. No fishing or plant collecting will be allowed on this trip. For more information and to sign up, please call Alan Carpenter at 444-2950 (W) or 443-8094 (H) (Boulder). Trip limit is 14 people.



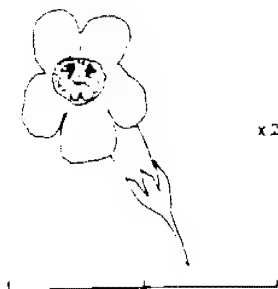
Middle Park Endemics

Sunday, June 18

Leader: John Anderson

We will visit sites of the recently proposed endangered species, *Astragalus osterhoutii* (Osterhout milkvetch) and *Penstemon penlandii* (Penland beardtongue), as well as other rare state species such as *Aletes nuttallii*. These are species whose nearest relatives or occurrences are in Wyoming and which represent a southern extension of an arid Wyoming floristic element. They grow on shale badlands around the town of Kremmling. Another Middle Park endemic, *Physaria osterhoutii* Payson, which is a form of *P. floribunda* with pendant siliques, can also be investigated. In addition, we will look at the site of the proposed Muddy Creek Reservoir which will inundate some areas of the Osterhout milkvetch.

Participants will meet at 10 AM at the Hot Sulphur Springs State Wildlife Area Campground 2 miles west of Hot Sulphur Springs along Highway 40 at the west end of Byer's Canyon in T1N R78W S16 NE. Those arriving the night before, on the 17th, can camp there or stay at a motel in Hot Sulphur Springs (a recommendation is the Riverside Hotel; phone 303/725-3589). Reservations are required: call Jeff Dawson at 722-6758 (Denver) to sign up. In accordance with CONPS policy, there will be no collecting on this trip.



x2

Penstemon secundiflorus

Pueblo West/Arkansas Valley

Saturday, July 8 (-9?)

Leader: Jim Borland

Travel part of the Arkansas River route that Pike, Long and Fremont took in the early to mid-1800's. Explore the outcrops of the Niobrara Formation and its unique collection of endemic plants. Expect to see the rare *Parthenium tetraeuris* and the elusive and troublesome *Mirabilis rotundifolius* which has been confused with its neighbors *Oxybaphus hirsutus* and the beautiful *M. multiflora*. Plants indicative of calcium, sulfur, salt and selenium soils abound alongside rafts of choice pulvinate rock garden species. Common dryland and riparian species that will be seen include: *Zinnia grandiflora*, *Melampodium leucanthum*, *Sphaeralcea angustifolia*, *Hofmanseggia drepanocarpa*, *Artemisia arbuscula*, *Atriplex confertifolia*, *Frankenia jamesii*, *Sarcobatus vermiculatus* and perhaps *Baccharis*.

The trip will begin in the vicinity of Pueblo Reservoir at 9:00 AM on Saturday July 8th. Walking sidetrips from vehicles will be mostly on level ground and be 1/2 mile or less. Arrangements for overnight camping and the possibility of extending this field trip another day to see the rare *Mentzelia densa* and additional botanical investigations up the road to Cripple Creek are being explored. Reservations required, trip limit 25. To register, call Jim Borland, 329-9198 (Denver).

New Field Trip

Yankee Boy Basin

July 22-23

Leader: Peggy Lyon

Yankee Boy Basin, famous for its wildflower displays, is a large sub-alpine to alpine meadow located near Ouray in the northern San Juan Mountains. William Weber in his **Colorado Flora: Western Slope** calls the San Juan Mountains "probably the most scenic, rugged, and probably least botanically explored mountains of western Colorado." This trip will provide an opportunity to botanize, camp, and hike in this beautiful area at the height of the flowering period.

We will meet at 10:00 AM on Saturday morning, July 22, at the west side of the parking lot of the Ouray Hot Springs pool, located along Highway 550 on the north side of Ouray. At the meeting place we will consolidate into four-wheel-drive vehicles for the half-hour drive to Yankee Boy Basin. Regular cars can drive much of the way to the Basin if required. The remainder of Saturday and Sunday morning will be spent at Yankee Boy Basin and nearby areas. If there is interest, we could drive over Imogene Pass to Telluride. We will return to Ouray by 2:00 PM Sunday to end the trip.

For Saturday night we plan to camp in Yankee Boy Basin. This will be primitive camping, with no facilities except previously used campsites. Accommodations are also available in Ouray, at motels, a KOA campground north of town, and a Forest Service campground south of town (Amphitheatre Campground). Bring the usual books, cameras, camping gear, food, warm clothes, rain gear and other supplies. Bring water if you plan to camp. Also bring a swimsuit for the hot springs pool in Ouray.

Reservations required. Call Peggy Lyon in Ridgeway (303/626-5526) or Jeff Dawson in Denver (303/694-2770) to register.

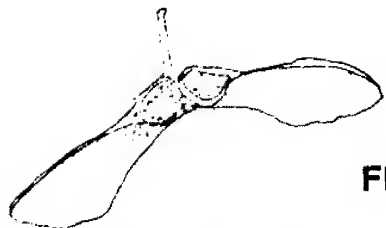


*Silene
antirrhina*

Sleepy Catchfly

Silene antirrhina

— see article opposite



FLORAL TRIBUTES

Ann Cooper

It is a fair assumption that all the people reading this newsletter are already more than casually interested in plants. They may be amateur or professional sleuths, tracking down the rarest of the rare. They may be plant advocates, agitating for the preservation of our native flora. They may be horticulturists in search of natives of the exact shape, color, or water requirements, to fit their landscape design. They may be all of these things, and more.

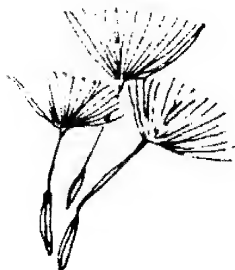
It is also a fair assumption that all the readers are adult--many are old enough to have forgotten how they first became enthusiastic about plants.

How do children become interested in plants? After all, plants are static. They possess none of the glamor or excitement of a garter snake or horned lizard along the trail. What plant features capture kids' imaginations? What facts about plants bore them? What turns children into the next generation of Native Plant Society supporters? I think about questions like these as I plan outdoor programs for children. As a result, I would like to pay tribute to many "old reliables" of the plant kingdom that seem to go down well with the younger set.

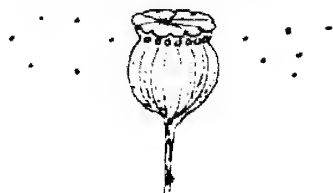
Most of the examples fit into the "nature did it first" category.

Thanks go to the fruits of *Glycyrrhiza lepidota*, wild liquorice, *Arctium minus*, burdock, and *Xanthium strumarium*, cocklebur. These wonderful examples of "nature's velcro" start the kids thinking in terms of form fitting function. Details seen with a hand lens can be quite a revelation.

Many of the composites provide parachute-achenes in such abundance that the kids can experiment with a little seed dispersal. *Tragopogon dubius*, salsify, is a satisfying example because of its size.



And talking of dispersal, the maples, with their propeller-samaras, and the oriental poppies (common escapees to the wild), with their pepper-shaker, poricidal capsules are perfect vehicles to convey form-and-function ideas. They also provide proof that plants are not so static after all.



Nature is a great packager. The pods of *Asclepias speciosa*, showy milkweed, are particularly appealing. Just opened, the seeds lie in neat rows, overlaying the tightly packed tufts of silk-like hairs that will later carry the seeds off on the wind. So precise is the packaging, that the seeds remind one of fish scales. As the silk dries, layer by layer the seeds are carried away--a nice timing mechanism for dispersal. Ask the kids if they could stuff all those seeds back in the pod. You'd get a chorus yelling "No way!" The same applies to cattails. One quick squeeze of a ripened cattail provides a highly entertaining "snowstorm".



Did we think we invented barbed wire? That invites the comparison with a branch of *Robinia pseudoacacia*, black locust, or *Prunus americana*, wild plum.

None of these plants is rare, or hard to find. That's the beauty of them. Some are not native. Children are largely unaware of, and indifferent to, the distinction between native and non native. Just as they are bored by names, unless they are intrinsically intriguing, or unless they have a good story attached.

What kids remember are nifty mechanisms, like the seed-shooting mock cucumber, *Echinocystis lobata*, that has "mini-loofahs" inside. They remember plants that look like something else, the elephant-heads of *Pedicularis groenlandica*, elephantella, or the dragon-tongues of the Douglas fir cones. They remember plants that scratch, *Mentzelias* for example. They remember plants that stink, such as *Grindelia squarrosa*, gumweed, and of course mints of all kind. They remember furry leaves like the mullein and twining tendrils like the vetch.

This may seem a statement of the obvious, but in the quest for rarities it is easy to dismiss the familiar, (Oh! that's only a weed), forgetting that these are the plants that may well "hook" the next generation of plant conservationists.

Now, if only someone will tell me how to explain *Silene antirrhina*, sleepy catchfly, to the kids. If it is good for the plant to catch insects on its stem, presumably to stop the insects plundering nectar or pollen, then why is it only good to catch those insects on alternating parts of the stem? As always, I sign off with more questions than answers.

Parthenium, continued from page 3

With the discovery of *P. tetraeuris*, Rupert Barneby began to see a pattern emerging that led him also to suspect central Wyoming as the locality of, in his words, "the legendary and long-lost *Parthenium alpinum*." Part of his reasoning was founded on his familiarity with the genus *Astragalus* in the western U.S. *Astragalus detritalis* was known to occur in association with *P. ligulatum* in Utah. A closely related milkvetch, *A. spathulatus*, had been collected in Fremont County, Colorado where *P. tetraeuris* had recently been discovered. *Astragalus spathulatus* occurred in abundance in central Wyoming, particularly in the high basins that lay in the gap between the southern and middle Rocky Mountains. Perhaps *P. alpinum* also occurred in this area, linking *P. ligulatum* on the west side of the Rockies with *P. tetraeuris* on the east side.

Barneby's reasoning proved correct when in 1947, 113 years after Nuttall's original collection, he and Ripley rediscovered *P. alpinum* near the town of Alcova in central Wyoming. Since then this species has also been found at several sites in southeastern Wyoming and northeastern Colorado (Weld County). Amazingly, it has also been discovered at one isolated location in northeastern New Mexico.

Thomas Nuttall, with his vague location information, is not entirely to blame for the "disappearance" of *P. alpinum* for over a century. A share belongs to the plant itself. *Parthenium alpinum* and its relatives could never be called showy. In fact, Barneby described *P. tetraeuris* as "deceptively inconspicuous."

The basic growth habit of these herbaceous perennials is that of a ground-hugging mat. They seldom exceed 1.5 inches in height. The stems are so short that it is difficult to tell where the roots end and the stems begin. Much of the branching of the stems is below ground, so that all one sees on the surface are dense tufts of gray-green narrowly spoon-shaped leaves.

When not in flower, these plants could easily be mistaken for some of the other species typical of the "mat plant" communities where they occur. Barneby, an experienced field botanist, admitted to passing over "many hundreds of plants of *P. tetraeuris*" in Fremont county, Colorado, assuming they were "a pathogenic or starveling state of the *Actinea* (*Hymenoxys*) with which it was growing." It was Dwight Ripley who finally noticed the tiny flower heads hidden in the foliage. In southeastern Wyoming, *P. alpinum* and *Cryptantha cana* are near look-alikes in early spring before the buds of the cryptantha begin to expand.

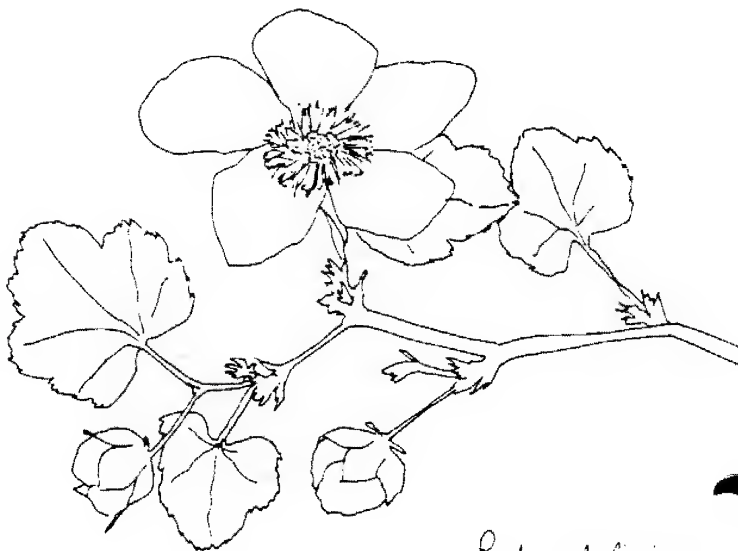
Even when in flower, *P. alpinum* and its relatives remain inconspicuous. Produced in May, the composite flower heads are tiny, about the size of small peas, greenish in color, and practically buried in the foliage. In fact, the heads

are difficult to see unless on one's hands and knees. Toward the end of the blooming period the heads turn brown and often fall away from the plant intact, looking like little brown balls.

While these plants may not stand out from the other species within their native habitats, they are a sharp contrast to their own kin. *Parthenium* is a genus of approximately 16 species, with a distribution centering in Mexico. It includes several woody species, one of which attains the stature of a small tree. *P. alpinum*, *ligulatum* and *tetraeuris*, with their diminutive growth form, simple leaves and greatly reduced, single-headed inflorescences, stand at one extreme of the genus. Except for the structure of their flowers, these three taxa differ so much from the rest of *Parthenium* that Dr. W.A. Weber of the Herbarium of the University of Colorado maintains them as a separate genus, using Nuttall's original name, *Bolophyta*. It is interesting to note that, while these three plants are the dwarfs of the genus, the size of their individual flower heads exceeds that of any other *Parthenium*.

Parthenium alpinum and its relatives are plants of harsh, barren environments where few other species grow. They occur at middle elevations, from 5000 to 7000 feet. *Parthenium alpinum* is found on rocky, windswept sites in sagebrush shrubland and shortgrass prairie. *Parthenium ligulatum* occurs in desert shrub and pinyon/juniper communities on barren substrates high in sulfur, gypsum and selenium. *Parthenium tetraeuris* grows on exposed outcroppings of gypsum-bearing rock in pinyon/juniper woodland and *Frankenia jamesii* shrubland. Rupert Barneby has noted that all three of these species seem to have an affinity for light-colored shales.

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Rubus deliciosus

Parthenium, from previous page

Typically, the other herbaceous species that occur with them are of similar growth habit — reduced leaves, fewer flowers and a matted or mounded pattern of growth. Often, these associated plants are themselves rare or restricted in distribution.

In central Wyoming, *P. alpinum* occurs in the vicinity of *Oxytropis nana* and *Townsendia spathulata*, two uncommon species with distributions limited primarily to Wyoming. In northeastern Utah, *P. ligulatum* is found in association with *Astragalus detritalis*, a plant endemic to the Uinta Basin. In Moffatt County, Colorado, it occurs with *Eriogonum tumulosum*, another basin endemic. Perhaps the most interesting associations occur with *P. tetraeuris* in the upper Arkansas River valley west of Pueblo, Colorado.

In Fremont County, *P. tetraeuris* occurs with the rare and poorly-known *Mirabilis rotundifolia* (*Oxybaphus rotundifolius*). *Parthenium tetraeuris* grows on the rocky tops of the bench-like hills, while *M. rotundifolia* occurs below, growing among the rubble of broken rock on the unstable slopes. Another interesting plant that occurs here is *Frankenia jamesii*, a shrub of peculiar distribution restricted to gypsum soils in New Mexico, Texas and southwestern Colorado. Like a number of other species which are generally southwestern in distribution, *F. jamesii* reaches the northernmost part of its range in this floristically interesting area.

Parthenium tetraeuris was found recently farther up the Arkansas River in Chaffee County west of Salida by Steve O'Kane, Jr., formerly of the Colorado Natural Areas Program. Occurring with it on barren hills of alluvium were two other rare Colorado endemics, *Eriogonum brandegei* and *Neoparrya lithophila*. This association is in itself remarkable, but even more amazing is the presence of *Astragalus sericoleucus*, a mat-forming milkvetch distributed primarily in western Nebraska and adjacent Wyoming. This isolated station is not only interesting as a significant range extension for this species, but its association with *P. tetraeuris* is intriguing since in certain sites in southeastern Wyoming, it occurs with *P. alpinum*.

Parthenium alpinum, *ligulatum* and *tetraeuris* have each been considered for protection under the Endangered Species Act. Of the three, *P. tetraeuris* has the most limited distribution and is the only one though to face serious threats to its survival. Residential development west of Pueblo and mining of raw materials for cement production near Portland in Fremont County are major concerns. Continued field work will probably yield additional populations of each species and is needed to add to our understanding of these interesting plants.

Jim Locklear

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